

## **HORN ANTENNA WITH DYNAMICALLY VARIABLE GEOMETRY**

### **ABSTRACT OF THE INVENTION**

An electromagnetic horn antenna (100). The antenna can include a horn  
5 housing having a throat portion (102), a tapered portion (106, 104) and an aperture 108.  
At least one cavity structure (142, 144, 138) can be provided within the horn housing.  
The cavity structure can include at least one wall (138) formed of a dielectric material.  
A conductive fluid (136) and a fluid control system (103) can be provided. The fluid  
control system can control a volume and a position of the conductive fluid contained  
10 within the cavity structures for dynamically modifying at least one electrical characteristic  
of the electromagnetic horn antenna.